Seventeenth Marcel Grossmann Meeting



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Inertial sensor for TianQin project

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TianQin is a Chinese space-borne gravitational wave detector proposed in 2014, and aims to detect gravitational waves in the frequency range of $1 \text{mHz} \sim 1 \text{ Hz}$, with three earth orbiting satellites with an orbital radius of about 105 km forming an equilateral triangle with side length 1.7×105 km. The free falling test masses are used as inertial references to provide measurement points for intersatellite laser interferometry, and also to guide the micro-thrusters control the spacecrafts to follow up them. The residual acceleration noise in the direction of the sensitive axis (intersatellite link) must be not exceed 10-15 m/s2/Hz1/2 within the detection band for TianQin. In this talk, firstly I will introduce the TianQin mission, and then present the requirement analysis and preliminary design of inertial sensor, finally give current progresses and its verification on the ground and in flight.

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